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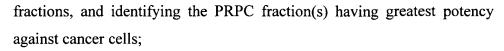
WHAT IS CLAIMED IS:

- 1. An anti-neoplastic pharmaceutical composition produced by a process comprising:
 - a) providing *Vernonia amygdalina* leaves;
 - b) soaking the leaves in water;
 - c) next, gently crushing the leaves, in the water, to produce a mixture;
 - d) filtering the mixture to produce a filtrate; and,
 - e) collecting the filtrate to produce an anti-neoplastic pharmaceutical composition.
- 2. The anti-neoplastic pharmaceutical composition of claim 1 produced by a process further comprising subjecting the filtrate to at least one mode of chromatographic separation.
- 3. The anti-neoplastic pharmaceutical composition of claim 2 wherein the modes(s) of chromatographic separation is/are selected from the group consisting of: preparative reverse phase high-performance liquid chromatography, ion exchange chromatography, and reverse phase chromatography.
- 4. The anti-neoplastic pharmaceutical composition of claim 2 produced by a process comprising sequential separation of the filtrate by two or more chromatographic modes.
- 5. The anti-neoplastic pharmaceutical composition of claim 2 produced by a process comprising, in any order, sequential separation of the concentrated filtrate by preparative reverse phase high-performance liquid chromatography, ion exchange chromatography, and reverse phase chromatography.
 - 6. The anti-neoplastic pharmaceutical composition of claim 2 wherein the process comprises:
 - 1) separating the filtrate into fractions by preparative reverse phase high-performance liquid chromatography (PRPC), to produce PRPC

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- 2) separating the PRPC fraction(s), identified in step 1), by Ion exchange Chromatography (IEC) to produce IEC sub-fractions, and identifying the IEC sub-fraction(s) having greatest potency against cancer cells;
- 3) separating the IEC sub-fraction(s), identified in step 2), by reverse phase chromatography (RPC) to produce RPC sub-fractions;
- 4) identifying the RPC sub-fraction(s) having the greatest potency against cancer cells; and
- 5) collecting the RPC sub-fractions identified in step 4) to provide the anti-neoplastic pharmaceutical composition.
- 7. The product of claim 1 which comprises a peptide having the sequence of SEQ ID NO:1 and/or SEQ ID NO:2.
- 8. A method of preparing an anti-neoplastic pharmaceutical composition, the method comprising the steps of:
 - a) providing Vernonia amygdalina leaves;
 - b) soaking the leaves in water;
 - c) gently crushing the leaves, in the water, to produce a mixture;
 - d) filtering the mixture to produce a filtrate; and,
 - e) collecting the filtrate to produce an anti-neoplastic pharmaceutical composition.
- 9. The method of claim 8 further comprising subjecting the filtrate to at least one mode of chromatographic separation.
- 10. The method of claim 9 wherein the mode(s) of chromatographic separation is/are selected from the group consisting of: preparative reverse phase high-performance liquid chromatography, ion exchange chromatography, and reverse phase chromatography.
 - 11. The method of claim 9 wherein the filtrate is subjected to two or more modes of chromatographic separation.

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- 12. The method of claim 11 wherein the filtrate is subjected to, in any order, sequential separation by preparative reverse phase high-performance liquid chromatography, ion exchange chromatography, and reverse phase chromatography.
- 13. The method of claim 9 comprising:
 - separating the filtrate into fractions by preparative reverse phase high-performance liquid chromatography (PRPC), to produce PRPC fractions, and identifying the PRPC fraction(s) having greatest potency against cancer cells;
 - 2) separating the PRPC fraction(s), identified in step 1), by Ion exchange Chromatography (IEC) to produce IEC sub-fractions, and identifying the IEC sub-fraction(s) having greatest potency against cancer cells;
 - 3) separating the IEC sub-fraction(s), identified in step 2), by reverse phase chromatography (RPC) to produce RPC sub-fractions;
 - 4) identifying the RPC sub-fraction(s) having the greatest potency against cancer cells; and
 - 5) collecting the RPC sub-fractions identified in step 4) to prepare the anti-neoplastic pharmaceutical composition.
- 14. A method of treating an animal afflicted with a neoplastic disease, said method comprising:

administering to the animal, a pharmaceutical composition produced by a process comprising:

- a) providing Vernonia amygdalina leaves;
- b) soaking the leaves in water;
- c) next, gently crushing the leaves, in the water, to produce a mixture;
- d) filtering the mixture to produce a filtrate; and,
- e) collecting the filtrate to produce an anti-neoplastic pharmaceutical composition;

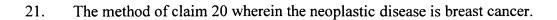
wherein said pharmaceutical composition is administered in an amount effective to slow or stop the progression of the neoplastic disease.

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- 15. The method of claim 14 wherein the pharmaceutical composition is produced by a process further comprising subjecting the filtrate to at least one mode of chromatographic separation.
- 16. The method of claim 15 wherein the mode(s) of chromatographic separation is/are selected from the group consisting of: preparative reverse phase high-performance liquid chromatography, ion exchange chromatography, and reverse phase chromatography.
 - 17. The method of claim 15 wherein the pharmaceutical composition is produced by a process comprising subjecting the filtrate to separation by two or more chromatographic modes.
- 18. The method of 15 wherein the pharmaceutical composition is produced by a process comprising, in any order sequential separation of the filtrate by preparative reverse phase high-performance liquid chromatography, ion exchange chromatography, and reverse phase chromatography.
 - 19. The method of claim 15 comprising:
 - 1) separating the filtrate into fractions by preparative reverse phase high-performance liquid chromatography (PRPC), to produce PRPC fractions, and identifying the PRPC fraction(s) having greatest potency against cancer cells;
 - 2) separating the PRPC fraction(s), identified in step 1), by Ion exchange Chromatography (IEC) to produce IEC sub-fractions, and identifying the IEC sub-fraction(s) having greatest potency against cancer cells;
 - 3) separating the IEC sub-fraction(s), identified in step 2), by reverse phase chromatography (RPC) to produce RPC sub-fractions;
 - 4) identifying the RPC sub-fraction(s) having the greatest potency against cancer cells; and
 - 5) collecting the RPC sub-fractions, identified in step 4), to provide the anti-neoplastic pharmaceutical composition.
 - 20. The method of claim 14 wherein the animal is human.

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- 22. The method of claim 14 wherein the pharmaceutical composition comprises at least one peptide having the sequence of SEQ ID NO:1 and/or SEQ ID NO:2.
- 23. A composition comprising a peptide having the sequence of SEQ ID NO:1 and/or
 5 SEQ ID NO:2.